ACHAL VYAS

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ROBOTICS ENGINEER

Enthusiastic Robotics and software Engineer with 4+ years of versatile professional experience in automation projects. Recently, led my autonomy team to top 3 in USA's prestigious drone competition. Eager to drive productivity at your company leveraging top-notch skills, communication & adaptability.

SKILLS

Programming Languages/Lib :	C++, Python, ROS, OpenCV, MATLAB, TensorFlow, NumPy
Modeling/Designing Tools :	AutoCAD, Creo, ANSYS, Solid Works, Fusion 360
Platform :	Gazebo, Simulink, Linux, Git, V-Rep, Analogic, PyBullet
Hardware :	Arduino, PLC circuits, Raspberry Pi, Odroid, Pixhawk

PROFESSIONAL EXPERIENCE

Lead Autonomy and Control Engineer
Aug'19 – May'21
Autonomous Micro Aerial Vehicles — College Park, MD
- Top 3 finalists in USA for past 3 years at VFS autonomous drone competition hosted by US army.
- Developed positioning and navigation algorithms for autonomous drones using Python, C++ and Ros.
- Innovated sensor fusion of GNSS and VIO, which improved drone navigation accuracy by 35%.
- Successfully integrated positioning, perception, and planning system for highly efficient object detection, avoidance, SLAM, and impressive endurance of 18 minutes for a 2 lb payload.

Robotics Development Intern
Jun'20 –Aug'20
Staubli Corporation — Duncan, SC
- Developed code for complex task performance of AGV robots using ROS and Staubli Robotics Suite.
- Assembled and tested hardware in loop and simulation and analyzed data of its performance.
- Assisted New Product Innovation team by optimizing CAD design and 3D manufacturing techniques.

Robotics Intern
Jun'20 –Aug'20
Void Robotics — Boston, MA
- Designed a delivery robot in Fusion 360, equipped sensors, controllers and simulated in Gazebo.
- Developed Intel RealSense support and automatic port identification function in Raspberry PI.
- Eased up the installation of navigation software on Linux by packaging and publishing on the cloud.
- Automated the file editing process in the ROS simulation packages using bash scripts.

Software Developer
Jun'16 – Aug'19
VOX360 Ways Pvt Ltd — Ahmedabad, India
- Developed and tested computer software like Python, C++, .Net, visual studio, Agile, and SQL.
- Helped land 6 major contracts during 3 years by effectively communicating easy-to-understand software solutions to match customer requirements, thus, bringing in $ 90 K in revenue.

EDUCATION

Master of Engineering: Robotics
May 2021
University of Maryland (GPA: 3.5/4) — College Park, MD

Bachelor of Technology: Mechanical Engineering
Jun 2019
Indus University (GPA: 9.7/10) — Ahmedabad, India

RELEVANT PROJECTS

Path Planning for Autonomous Robots
- Simulated Baxter Arm in ROS and C++ to pick, place and avoid obstacles using SLAM.
- Introduced Dijkstra's, A* algorithm to navigate robots by quickest route and simulating in Gazebo.

Spot Welding Robot (4 axis)
- Designed using solidworks and AutoCAD, programmed using ROS, codded Pic controller, and performed analytical calculation using MATLAB and Simulink.

TENEZEBO
- Used Python, ROS, and OpenCV to simulate a tennis ball collecting robot. Applied Agile Iterative Process to design and implement a tennis ball detection and collection pipeline.

Perception for Autonomous Robots & Vehicles
- Enhanced low-light image frames by 30% via application of CLAHE & gamma correction.
- Programmed a computer vision – human detection module using C++ and OpenCV dependencies.